INTELLIGENT ROAD TRAFFIC CONTROL SYSTEM

- One study done in Boston has proved -

Reconfiguring the timings of

60 intersections

in one district in the city

could save $1.2 million / year

Time based Implementation

“It allocates time even if there are no vehicles“

“It allocates time
even if there are
no vehicles”

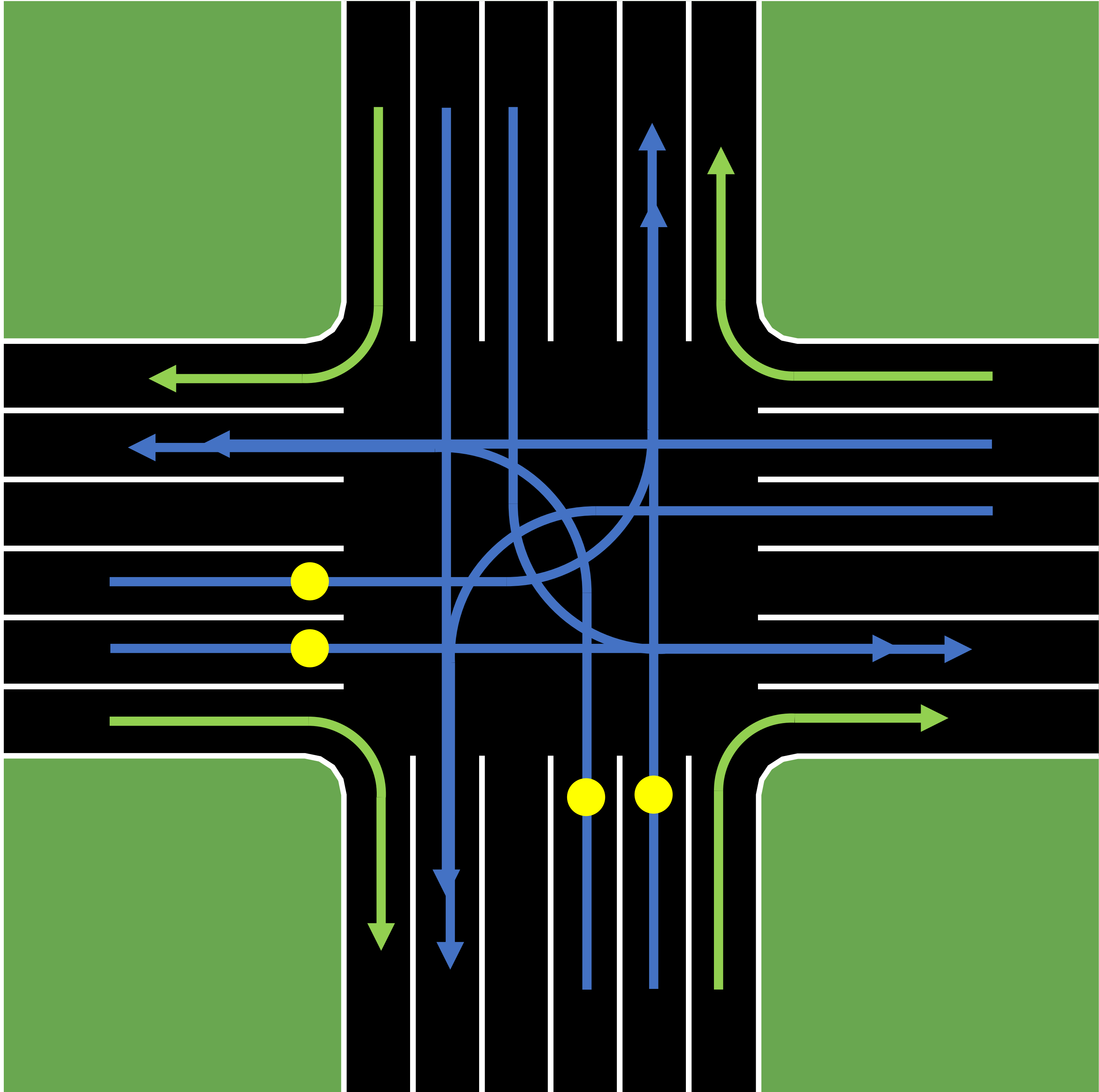
4x30s

2 mins

"It allocates time even if there are no vehicles"

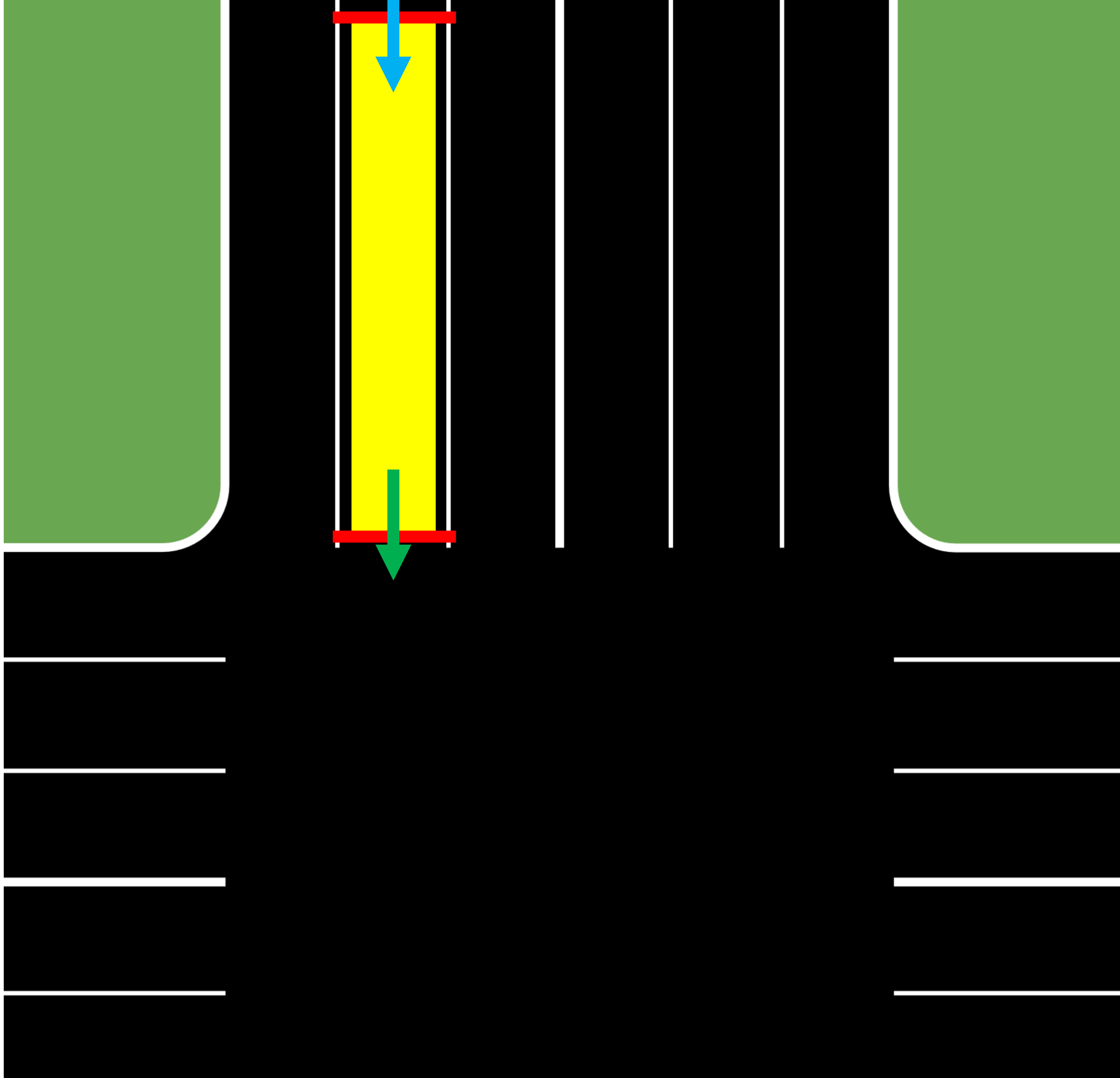
2x30s

1 min

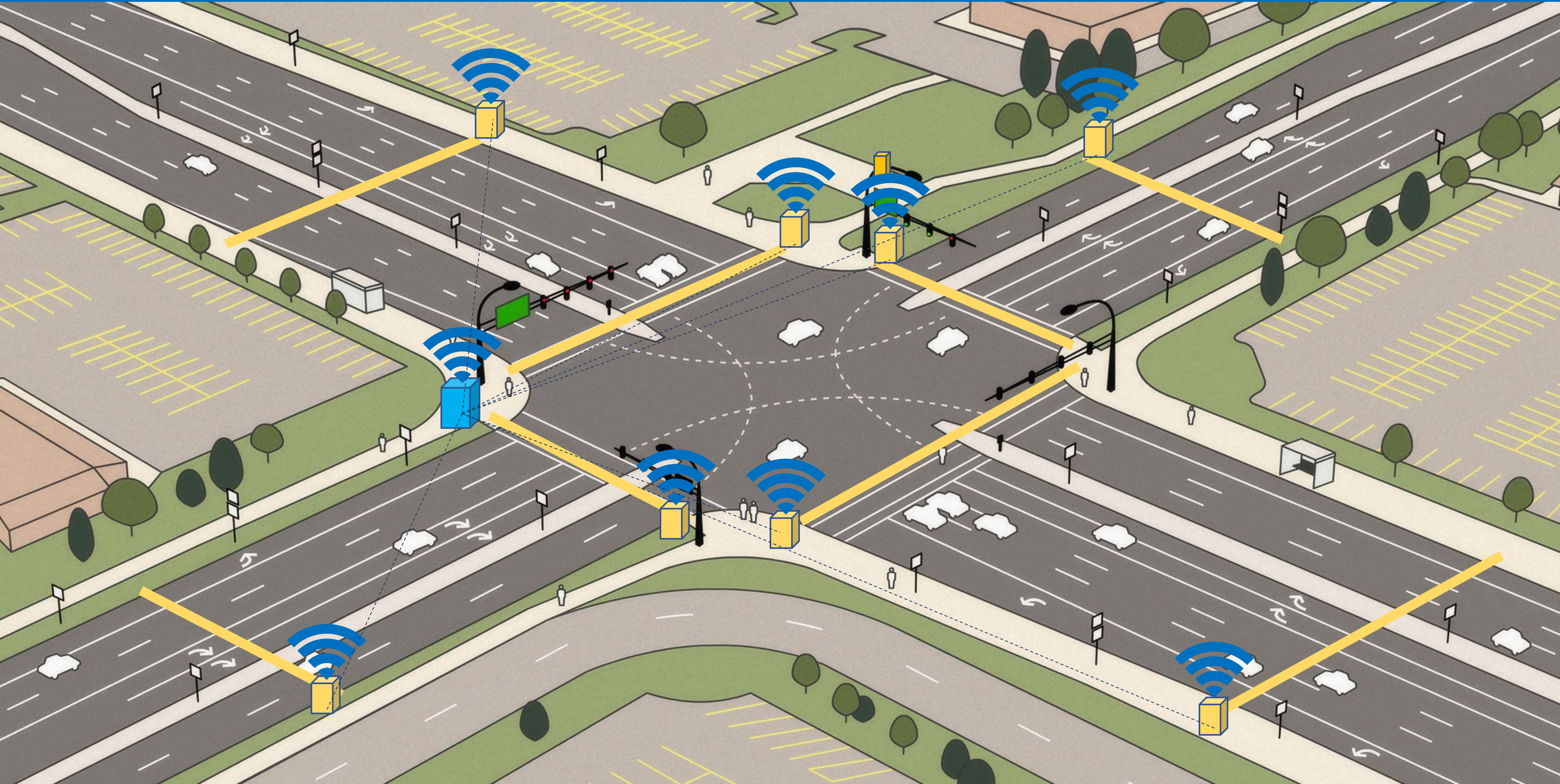


Our Implementation

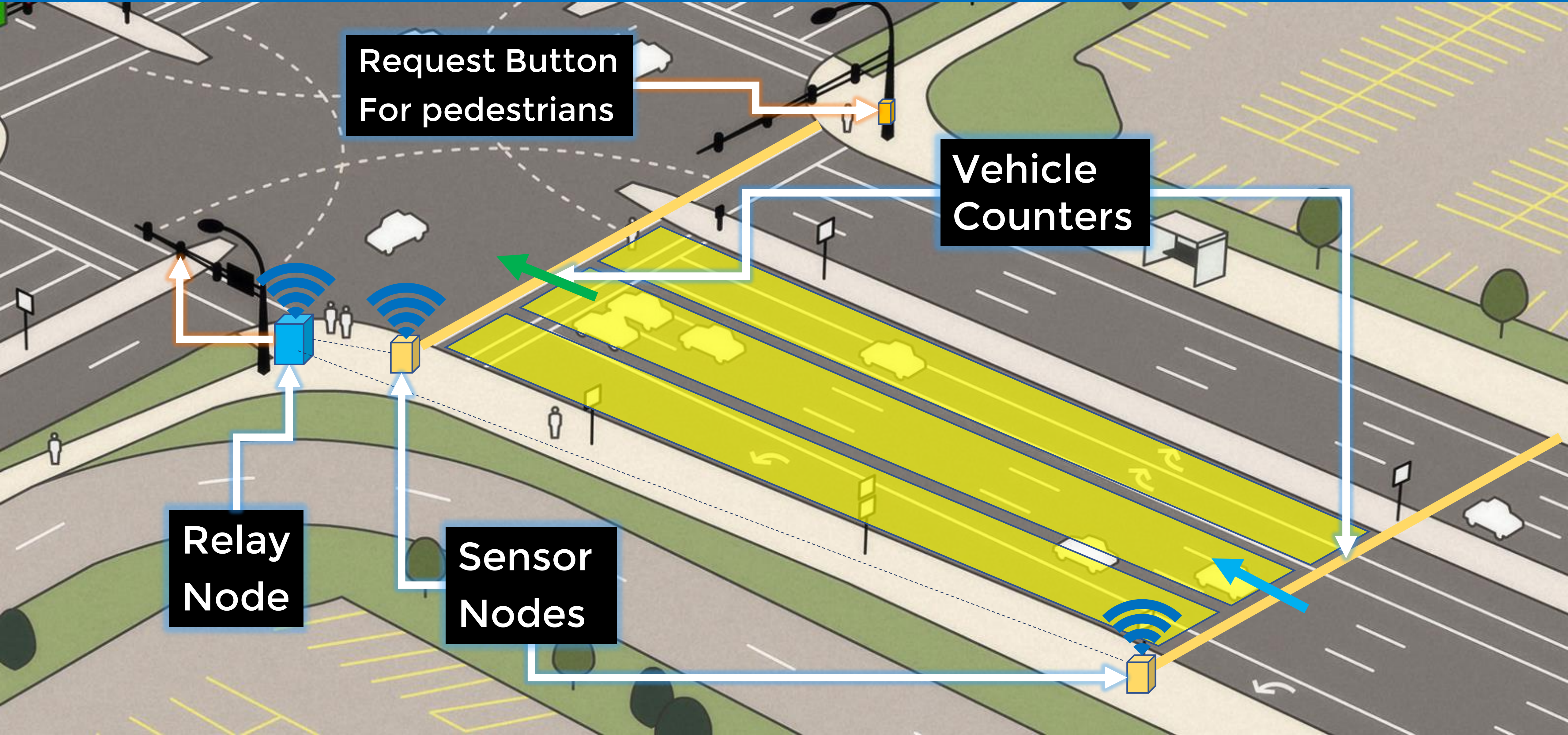
1. Take a region On each lane
2. Fix counters at two ends
3. Count incoming, outgoing number of vehicles
4. Take the difference



Overall view



Setup


Request Button
For pedestrians
Vehicle
Counters
Relay
Node
Sensor
Nodes

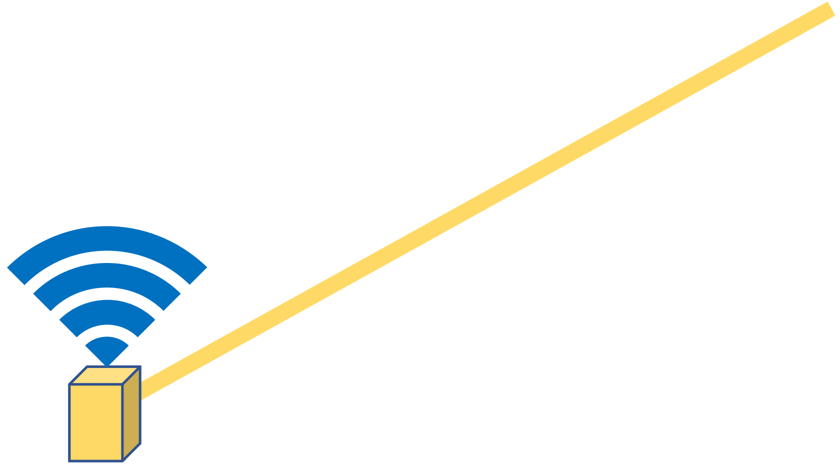
Plan for the Demonstration

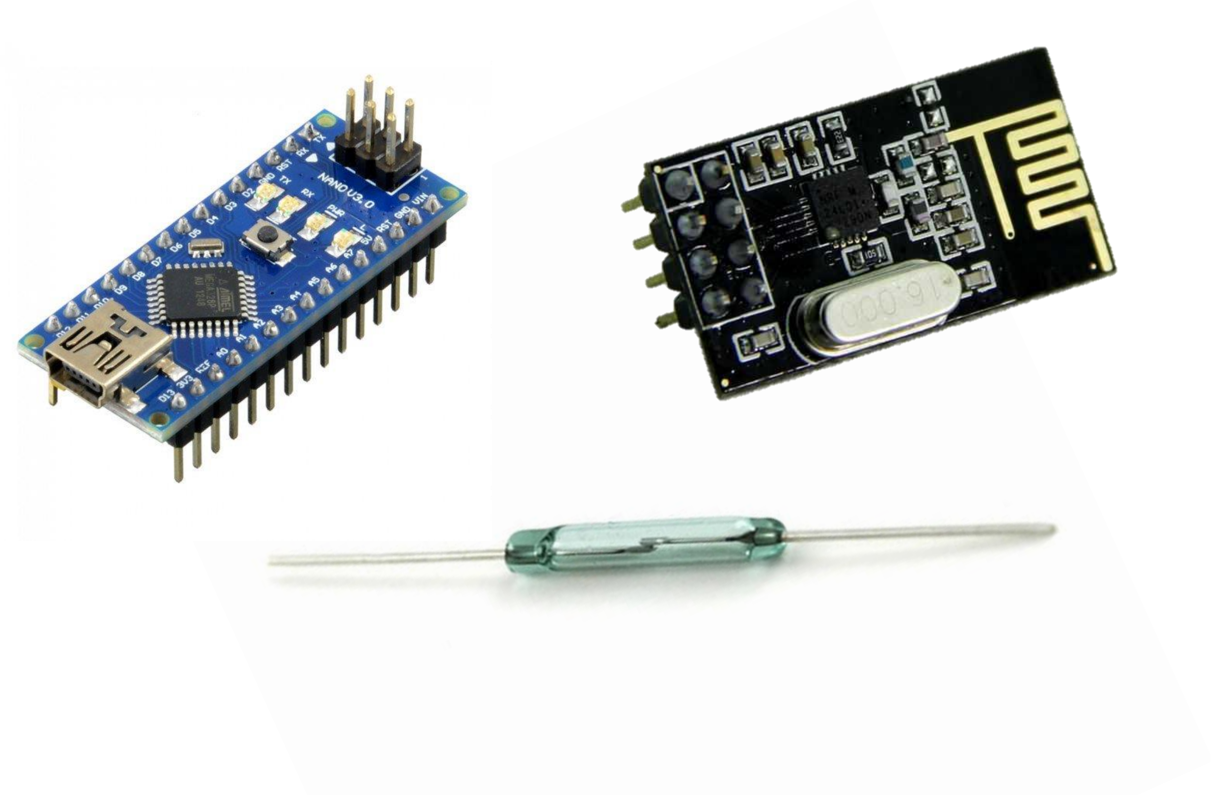
- Prototype of a 4-way junction
- Simulate a junction grid using the Vehicle Simulator

Real life	Prototype
Pneumatic Road Tube Counter	Magnetic Reed Sensor
8 Sensor nodes per junction	4 Sensor nodes per junction

Sensor Node

- Read data from counters
- Communicates with the Relay Node

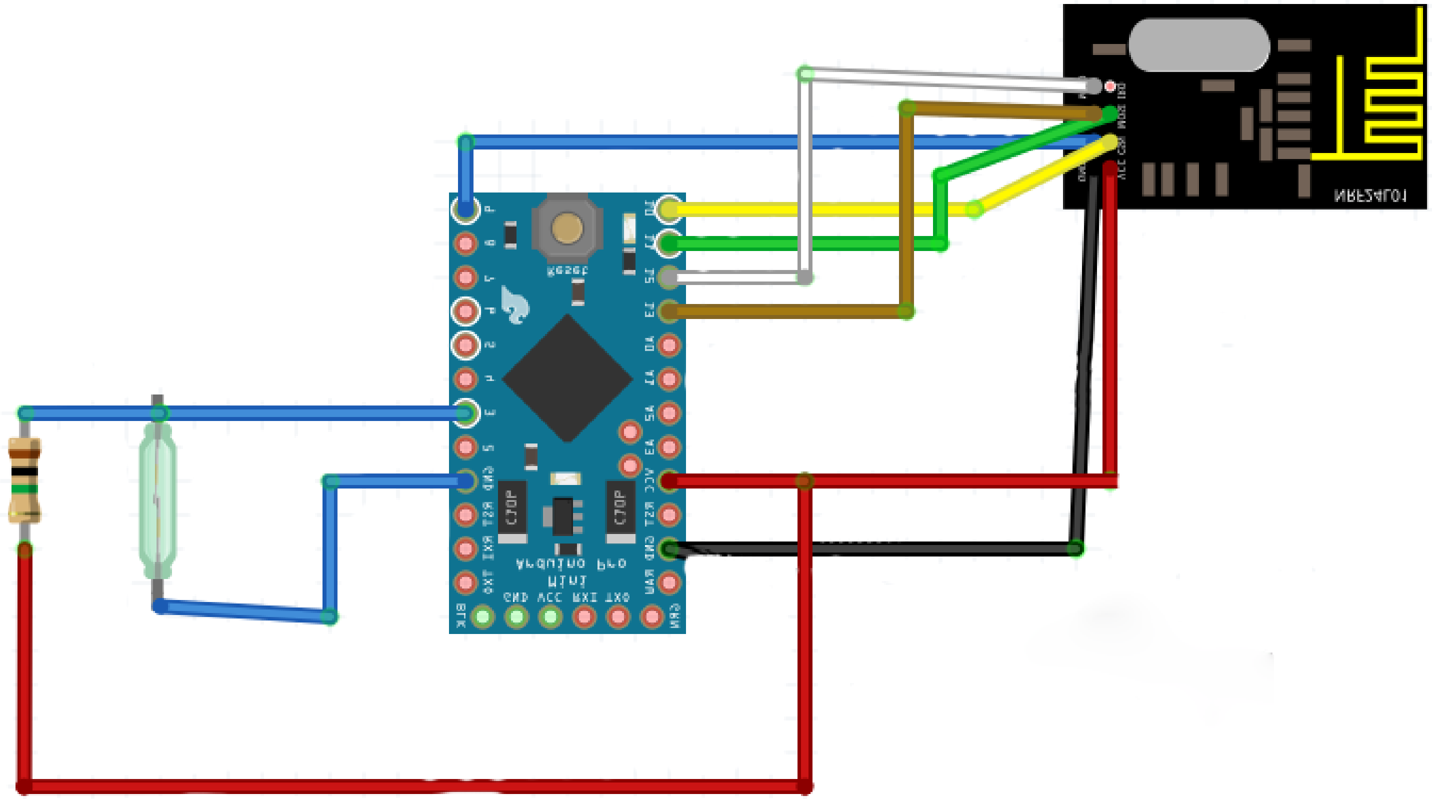




Consists of:

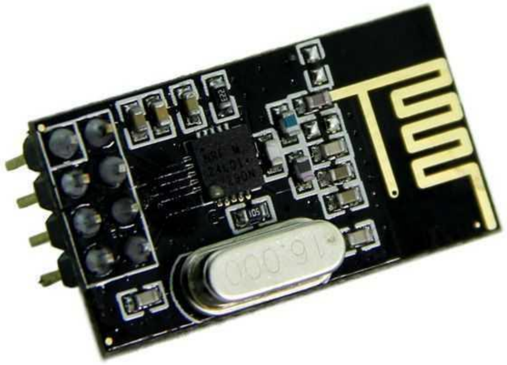
- Arduino Nano
- Magnetic Reed sensors
- RF receiver

Sensor node Circuit diagram



Relay Node

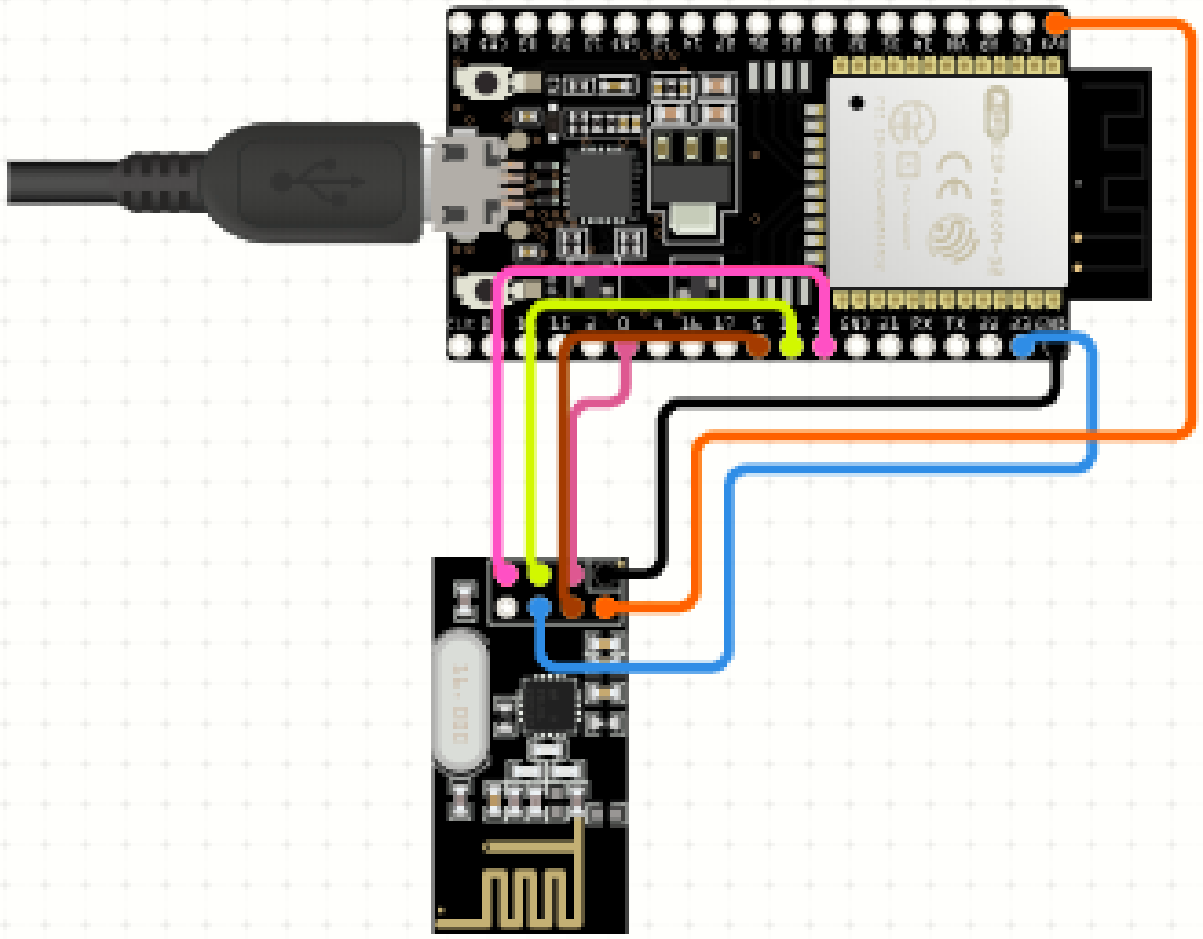
- Gets data from Sensor nodes
- Communicates with the Server
- Send control signals to color lights



Consists of:

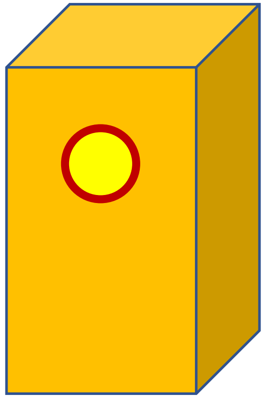
- ESP32
- RF receiver

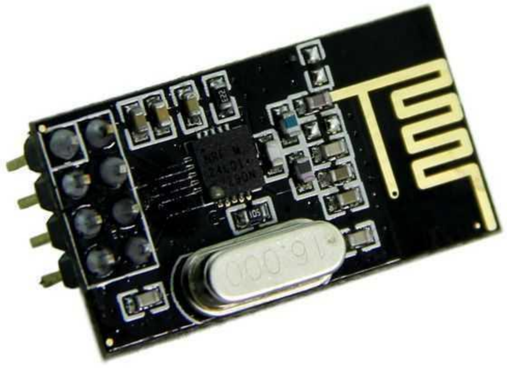
Relay node Circuit diagram



Request Button

- For pedestrians
- To make a request for crossing





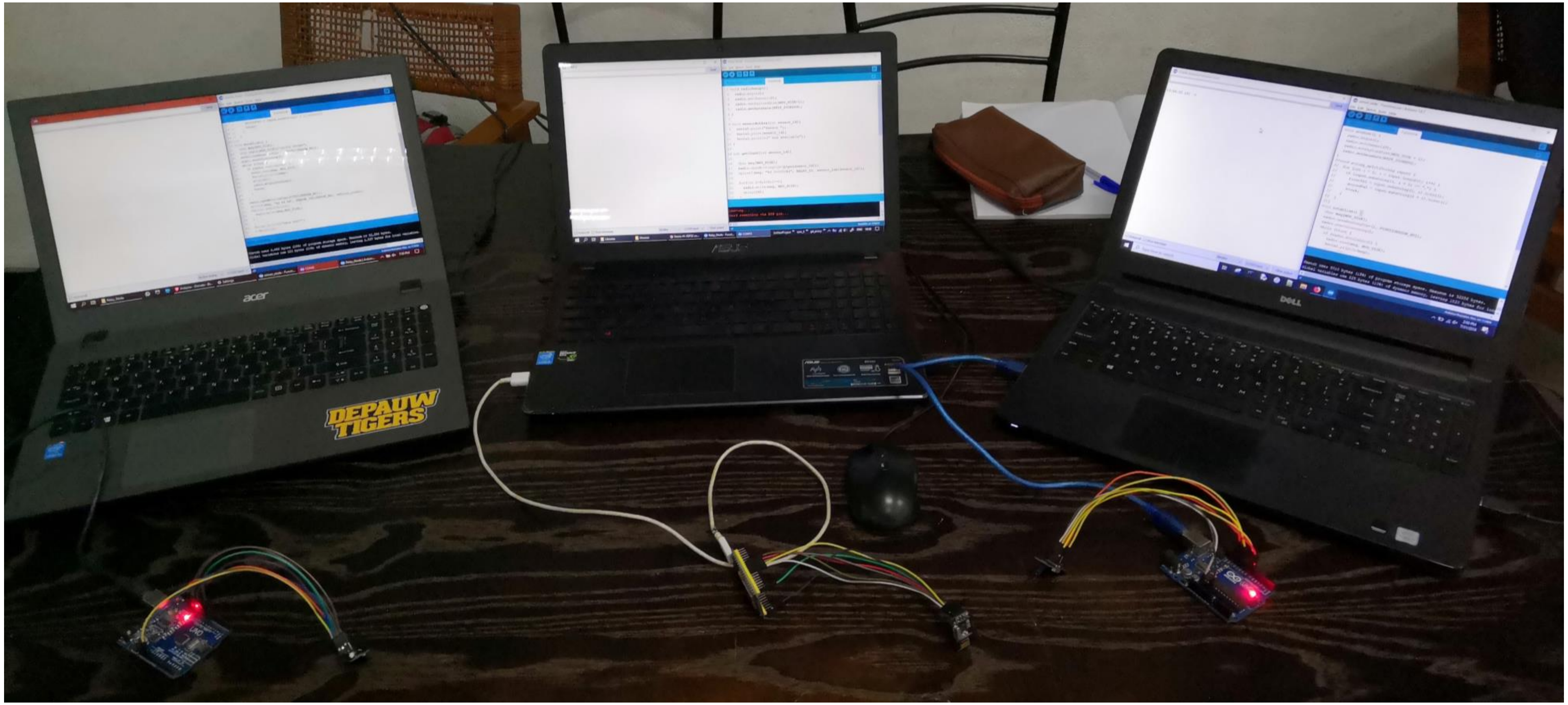
Consists of:

- Arduino Nano
- RF transmitter

What we have done so far

Radio communication

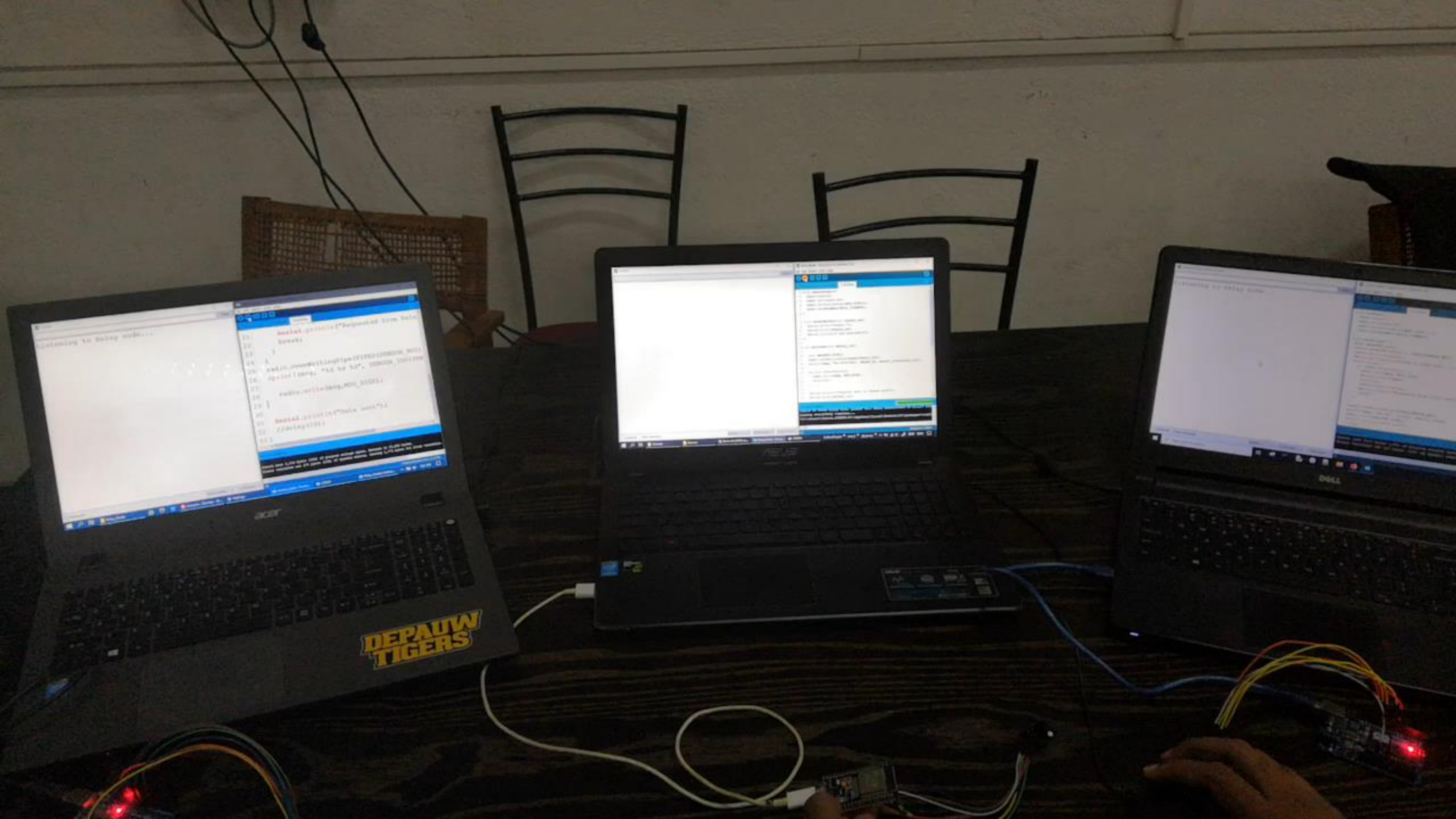
- Implemented a protocol to communicate with sensor nodes



Sensor Node 0

Relay Node

Sensor Node 1



```
Listening to Relay node...
```

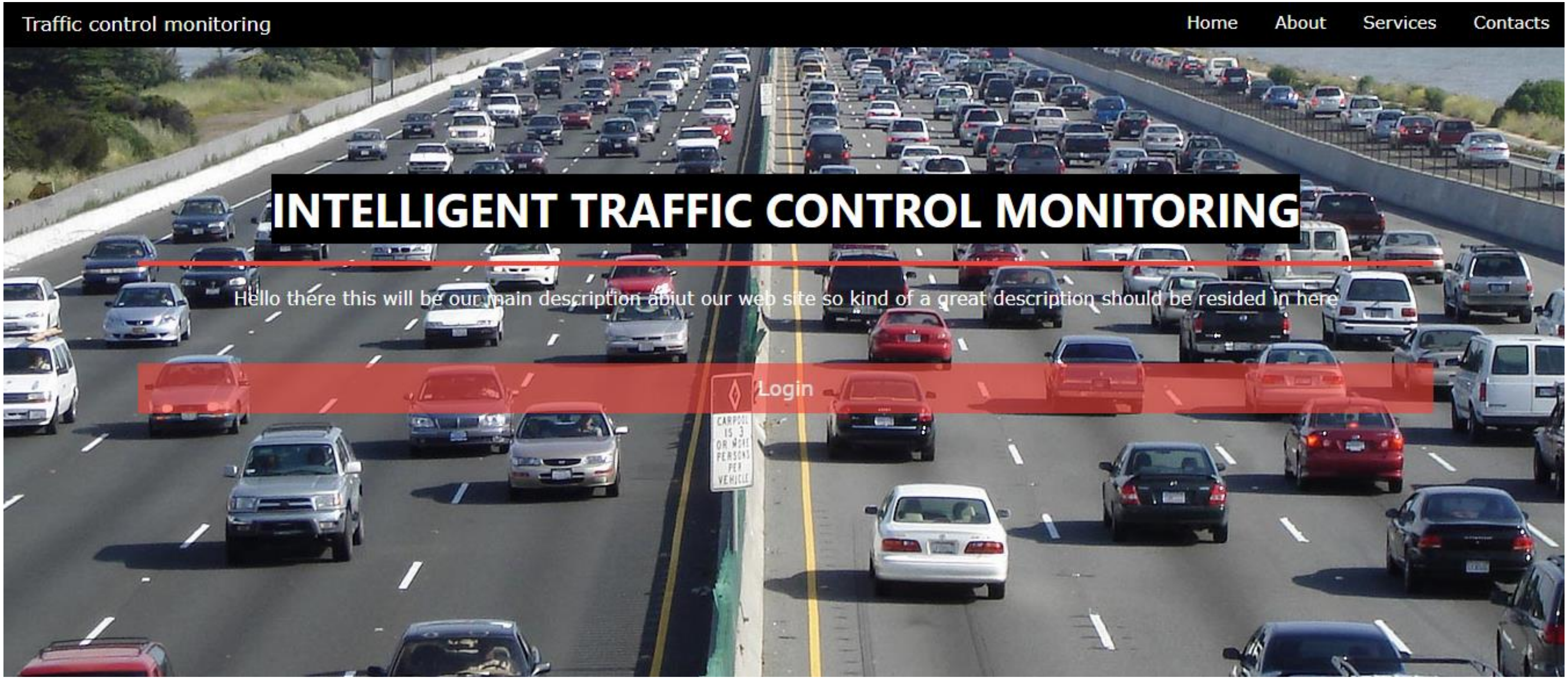
```
    Serial.println("Requested from Rela
    break;
  }
}
radio.openWritingPipe(PIPE0|SENSOR_NOD
sprintf(msg, "%d %d %d", SENSOR_ID(
  radio.write(msg,MSG_SIZE);
}
  Serial.println("Data sent");
  //delay(10);
```

Used ESP32 to upload data to the server

- Client-Server communication using HTTP
- Database handling using PHP

Web interface

- HTML, CSS, JavaScript



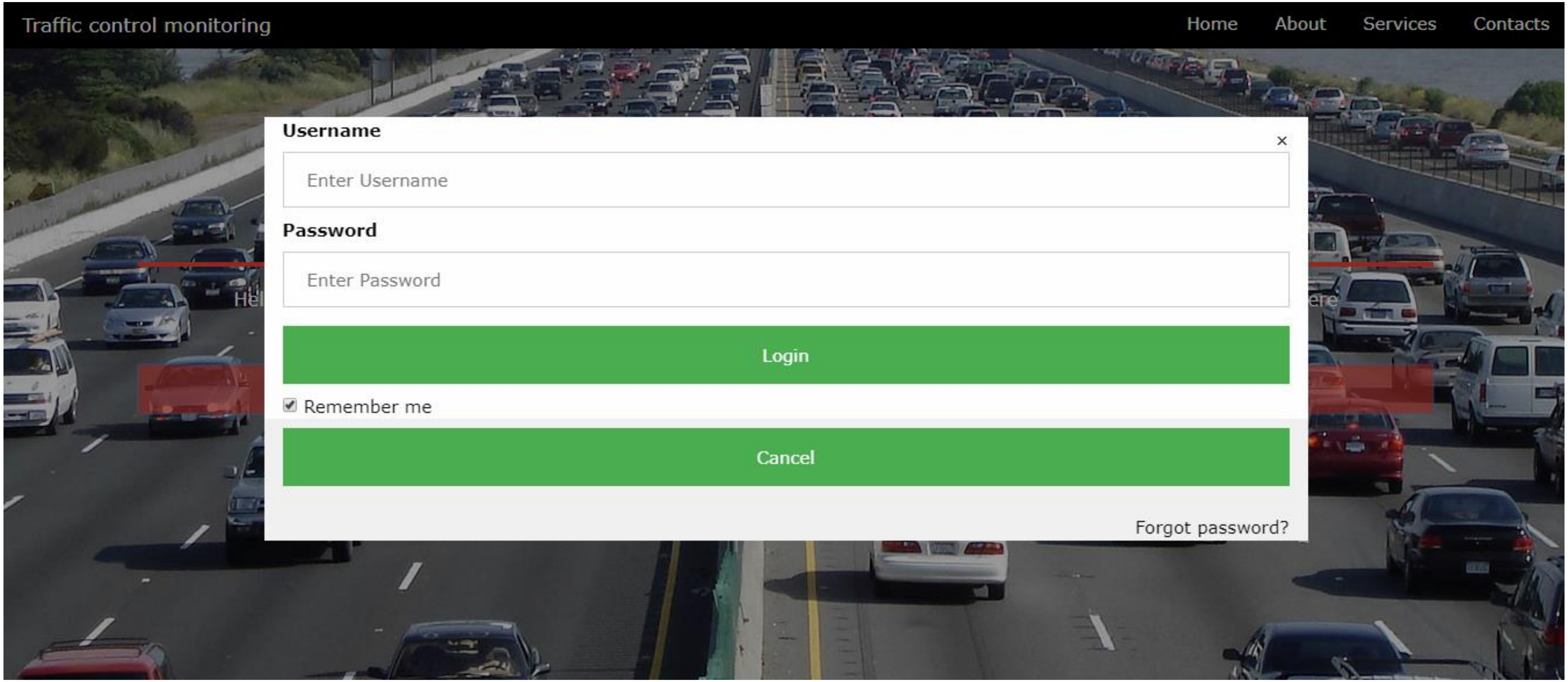
Traffic control monitoring
Home
About
Services
Contacts
Login
CARPOOL IS 3 OR MORE PERSONS PER VEHICLE

INTELLIGENT TRAFFIC CONTROL MONITORING

Hello there this will be our main description abiut our web site so kind of a great description should be resided in here

Web interface

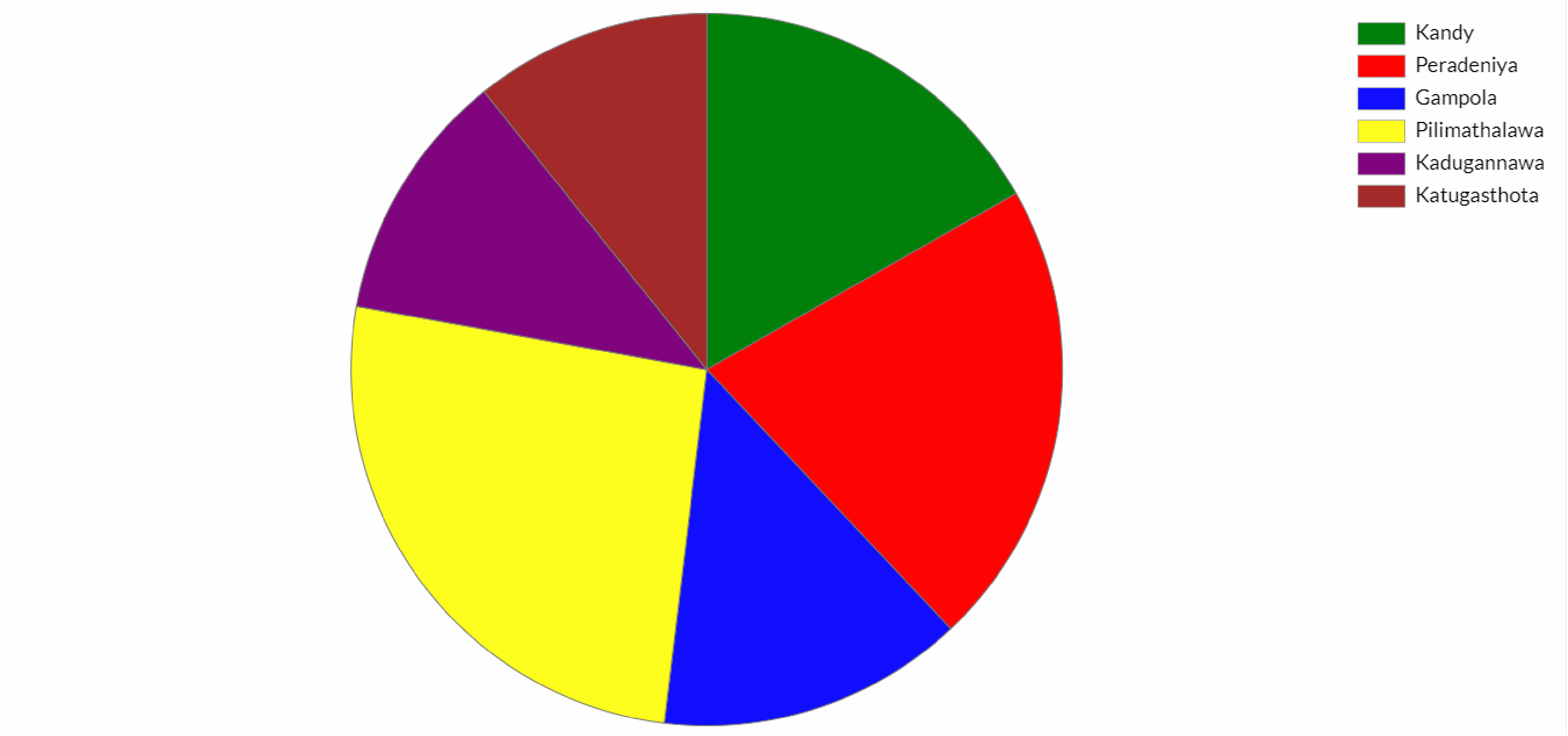
- HTML, CSS, JavaScript



☑ Remember me

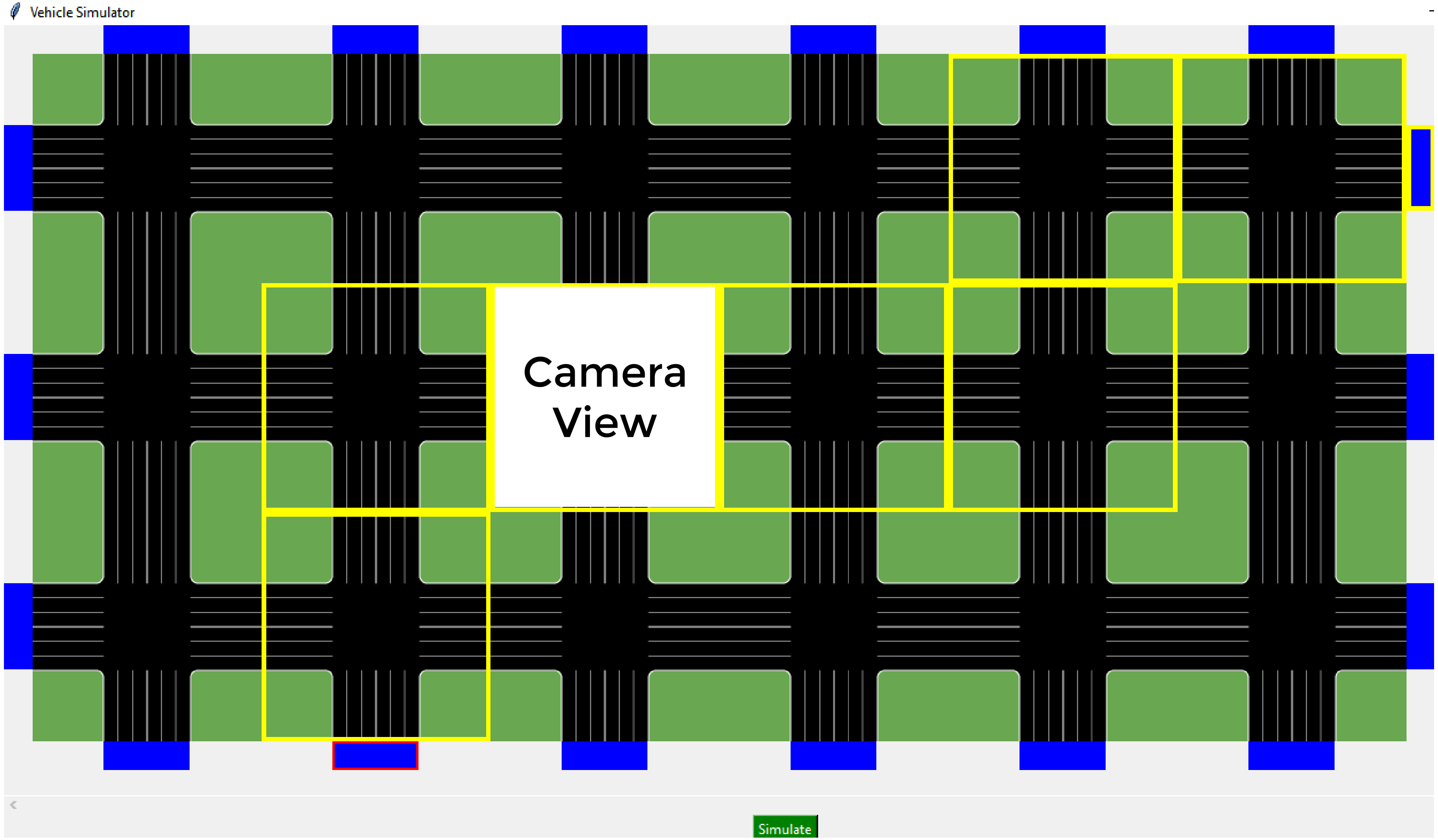
Web interface

- HTML, CSS, JavaScript



Python base Vehicle Simulator

- GUI design (tkinter), Dynamic grid size
- Event handling, Camera view



Python base Vehicle Simulator

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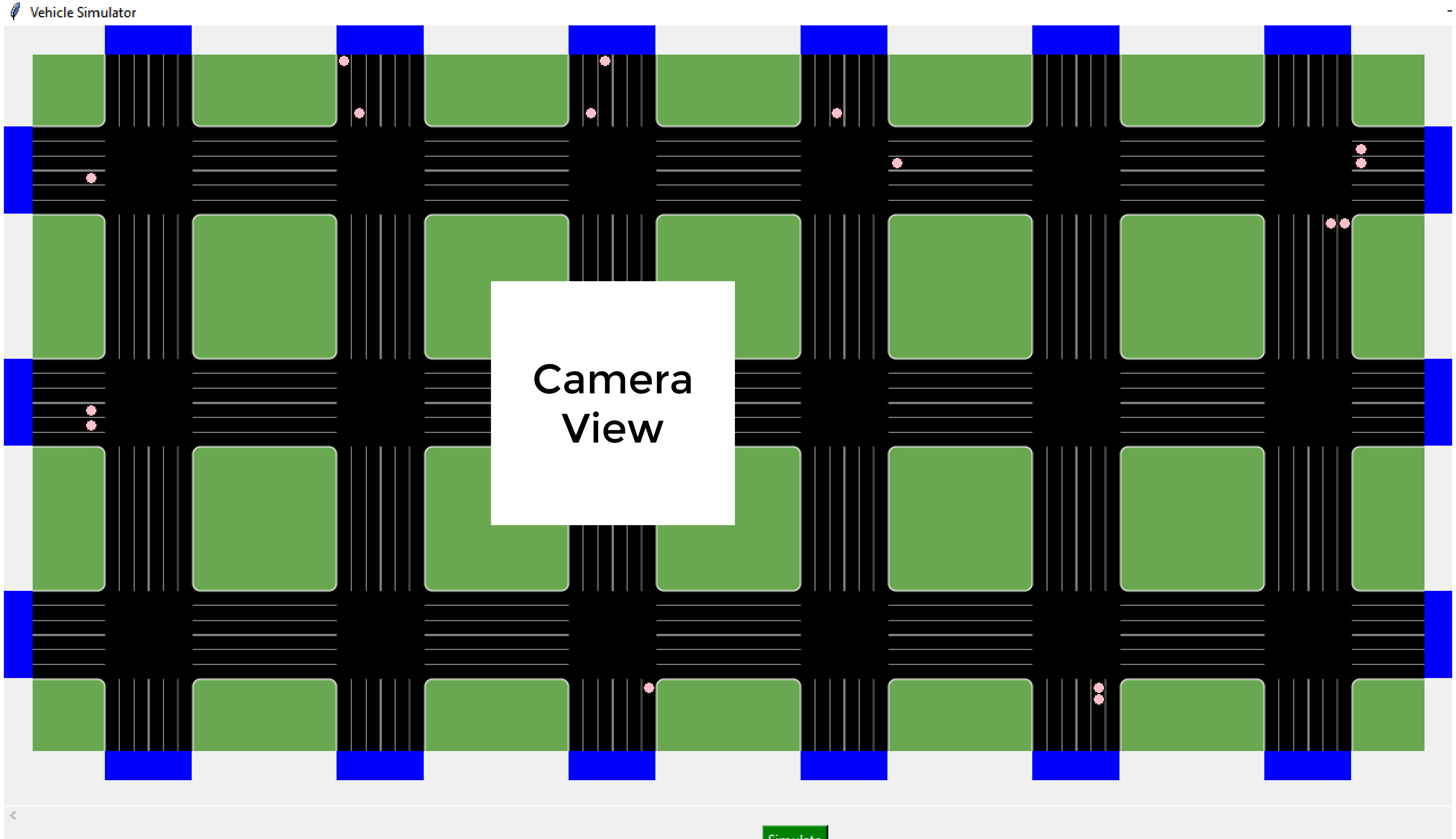
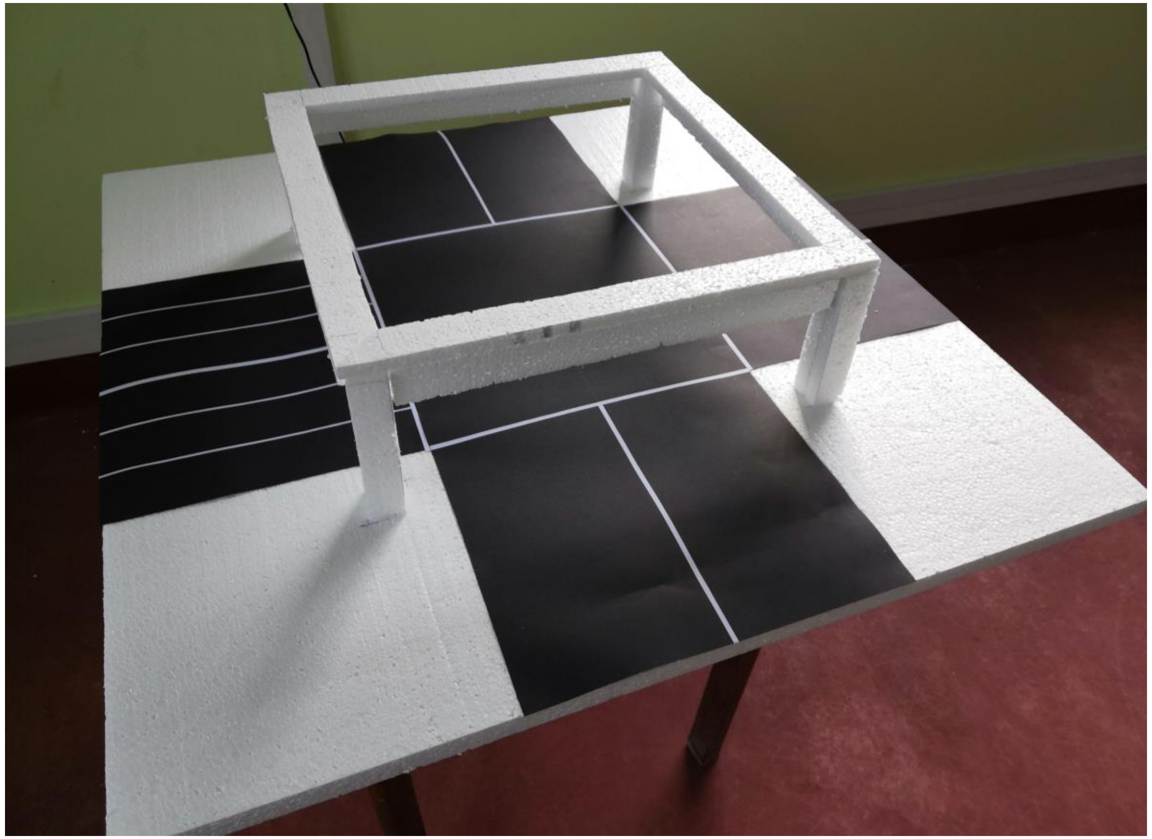
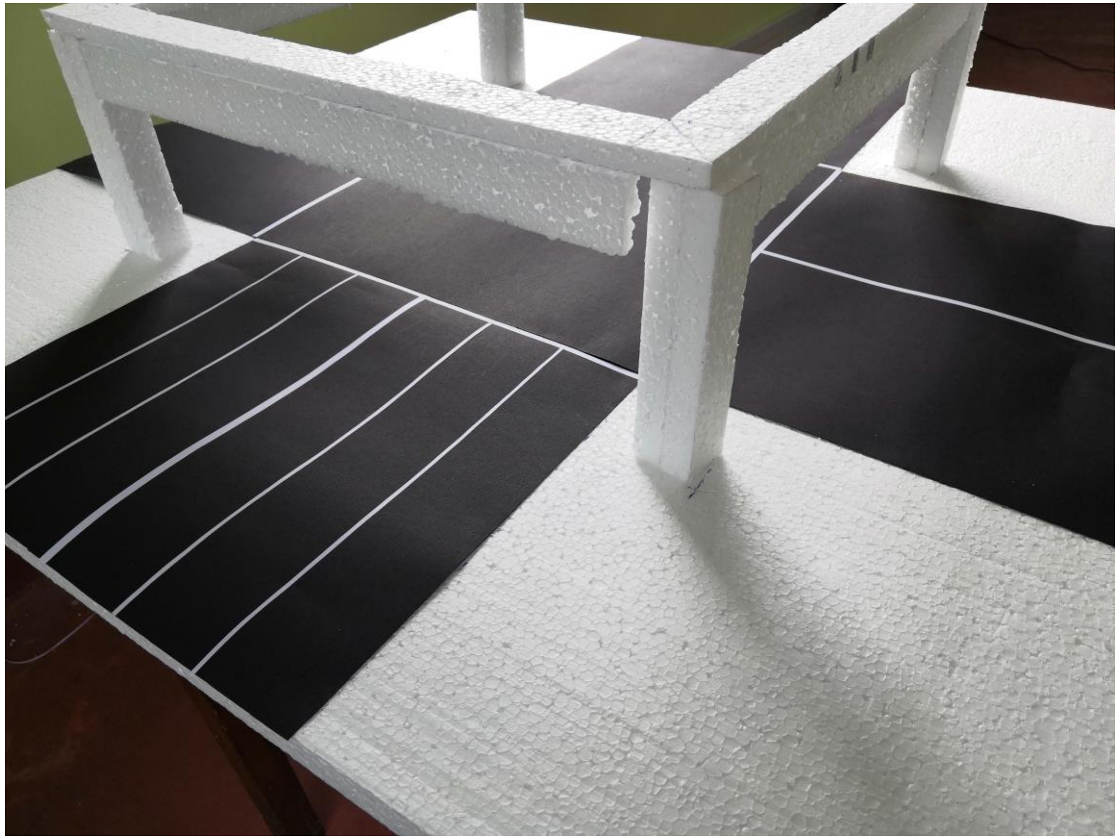


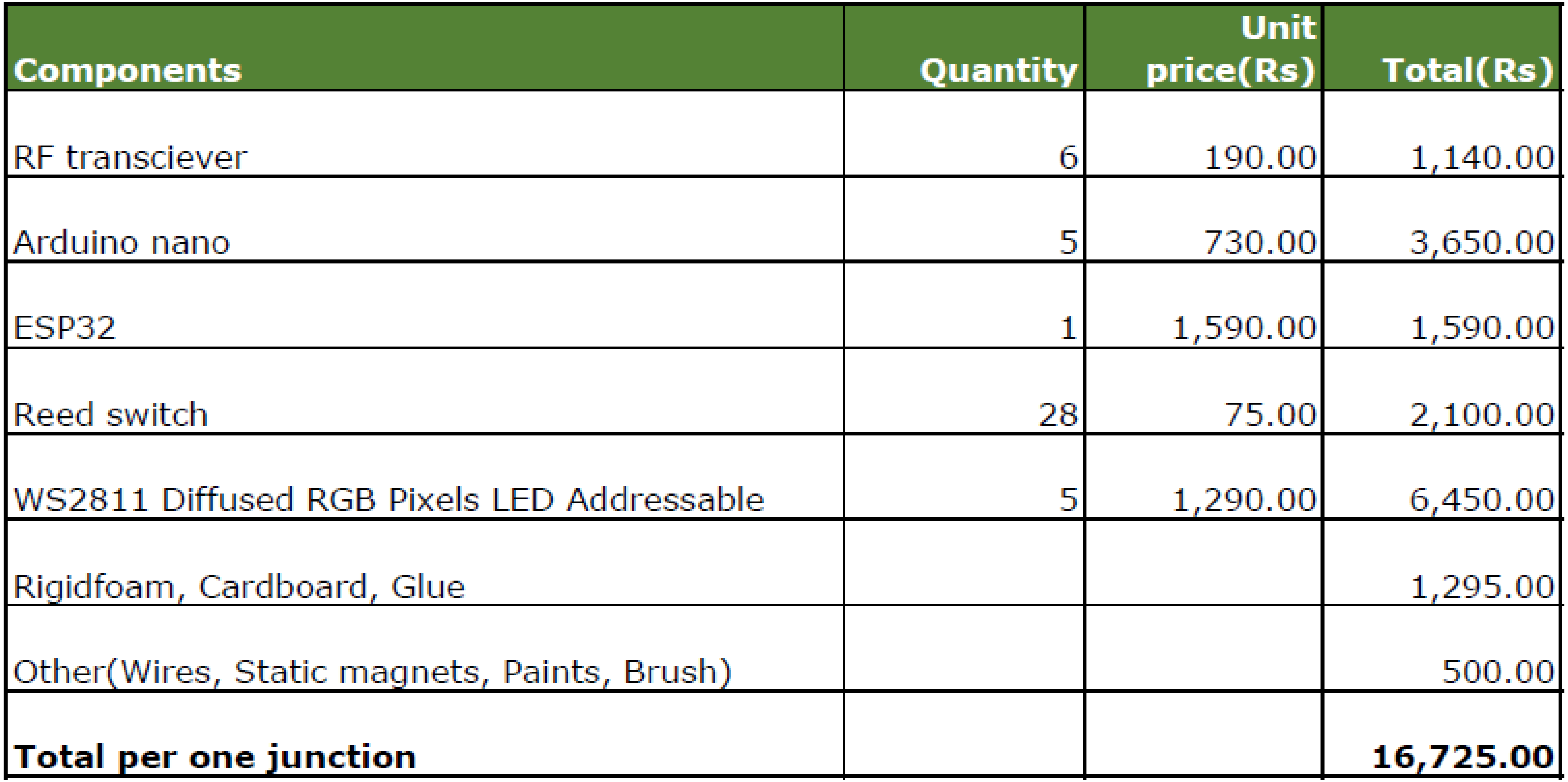
Prototype





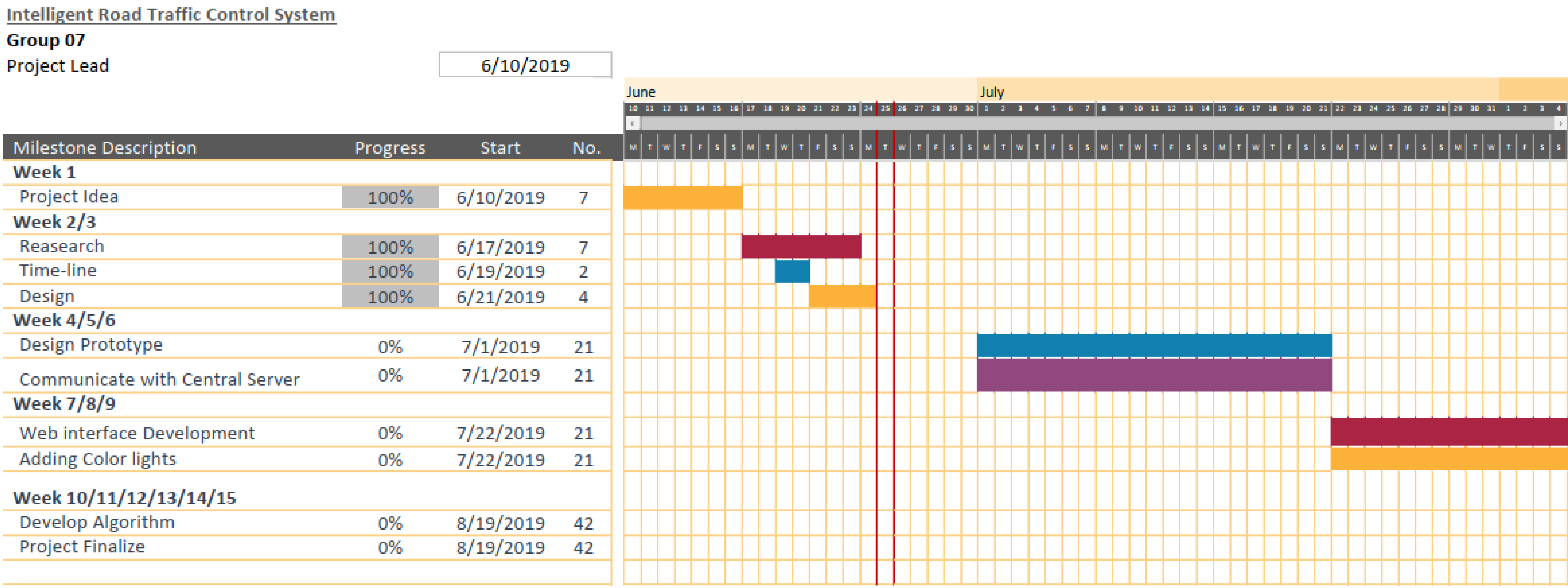
Budget

Per Junction



Components	Quantity	Unit price(Rs)	Total(Rs)
RF transciever	6	190.00	1,140.00
Arduino nano	5	730.00	3,650.00
ESP32	1	1,590.00	1,590.00
Reed switch	28	75.00	2,100.00
WS2811 Diffused RGB Pixels LED Addressable	5	1,290.00	6,450.00
Rigidfoam, Cardboard, Glue			1,295.00
Other(Wires, Static magnets, Paints, Brush)			500.00
Total per one junction			**16,725.00**

Timeline



Intelligent Road Traffic Control System

Group 07

Project Lead 6/10/2019

Milestone Description	Progress	Start	No.
Week 1			
Project Idea	100%	6/10/2019	7
Week 2/3			
Reasearch	100%	6/17/2019	7
Time-line	100%	6/19/2019	2
Design	100%	6/21/2019	4
Week 4/5/6			
Design Prototype	0%	7/1/2019	21
Communicate with Central Server	0%	7/1/2019	21
Week 7/8/9			
Web interface Development	0%	7/22/2019	21
Adding Color lights	0%	7/22/2019	21
Week 10/11/12/13/14/15			
Develop Algorithm	0%	8/19/2019	42
Project Finalize	0%	8/19/2019	42

Thank You !

Q & A